NexGenBus Team

Composite Bus Scoring Sheet

Name	Standard	Medium	Bus Rate (@100 ft/30 m)	BER	Node Sync	Industry Acceptance	Ease of Use: Medium	Ease of Use: Cable Diam	Ease of Use: Bend Radius	Field Mfr of Connector	Topologies	Cable Spec	Score
FibreChan	ANSI X3.231	Coax	9	10	9	6	10	10	10	10	10	10	**92.1**
FibreChan	ANSI X3.230	STP	9	10	9	6	10	8	8	10	10	1	**85.0**
FireWire	IEEE p1394b Draft (	STP	8	10	7	5	10	7	10	10	5	1	**78.3**
Gigabit Eth	IEEE 802.3z	STP	9	10	4	10	10	4	5	10	10	1	**77.9**
FibreChan	ANSI X3.231	Fiber Optic	9	10	9	6	10	8	1	1	10	1	**71.7**
Gigabit Eth	IEEE 802.3z	Fiber Optic	9	10	4	10	10	8	1	1	10	1	**70.4**
FireWire	IEEE p1394b Draft (	Fiber Optic	10	10	7	1	10	10	3	1	5	1	**65.8**
FDDI	ANSI X3.149	STP	1	9	1	10	10	8	8	10	10	1	**65.0**
FireWire	IEEE 1394-95	STP	4	5	7	7	5	7	10	10	5	1	**61.7**
SSA	ANSI X3.293-1996	STP	4	10	4	7	5	4	5	10	10	1	**61.7**
SONET	ANSI T1.105	Fiber Optic	9	9	10	7	0	10	6	10	1	1	**0.0**
HIC	IEEE 1355	Fiber Optic	9	10	0	3	0	7	1	1	10	1	**0.0**
FDDI	ANSI X3.148	Fiber Optic	1	9	1	10	10	10	0	1	10	1	**0.0**
ATM	ATM Forum UNI 3.1		0	Not rated since SONET is used as the ATM physical layer									**0.0**

Notes:

- This study was a high level look at these 8 standards. It was designed to pare the list to a manageable number quickly.
- The busses were rated separately for each medium they supported. The best rating for each bus was considered.
- A score of zero in any column is below the minimum requirement and causes a score of zero for that bus medium.
- STP -- Shielded Twisted Pair
- The gray fields are the top showings for each bus.
- The busses in the top 3 gray fields will be studied in more detail.

Bus Scoring Instructions

General Instructions

For each element, provide a statement or two to a few paragraphs as to how this rating was obtained. Providing the spec and paragraph number would be a good idea.

For standards, that support multiple physical media (twisted pair, coax, optical, etc), fill out an evaluation for each media type.

If filling out on the computer, fill in only the light green boxes. The spreadsheet will calculate the rest.

If filling the sheets out by hand, enter the raw column score in the fields provided. Multiply the column scores by their listed weighting. Add all of the weighted scores together and place in the total box. Divide the total by 2.4 (to normalize to 100) and place final score in box labled Score.

Specific Rating Instructions

Bus Rate
Enter the bus rate (not data throughput) for the bus and cable type being considered.

Bit Error Rate
Enter the bit error rate of the bus. At this point, we are not taking retransmissions or forward error correction into account. However, if the spec provides a value including these, be sure to list it in the writeup. If too many busses state their BER this way, we may have to go back and change the rating criteria.

Node Sync
This may take a little more understanding of how the bus operates. For a bus or linear topology, this is a given. The only question then, is how to determine the sync resolution. State all assumptions, equations, etc on how this value was determined. This is an important capability.

Industry Acceptance
This is very subjective. Choose any value, using the words as guidelines. Try to describe why/how you came up with this value.

Medium
This element applies to the standard, not the media being evaluated. A fiber optic only implementation was not considered. Acceptance of the standard will be easier if a growth path is provided -- copper then fiber optic.

Cable Diameter
Use the cable called out in the spec. It is preferable to use the specified cable with a non-PVC jacket rather than specifying a new cable altogether.

Bend Radius
Based on media being evaluated, look up the specs, try bending the cable in lab, try bending a cable of similar construction and size, or guesstimate. State procedure.

Field Manufacturability of Connector
Is the connector able to be fastened to the cable out in the field? Does the connector require molding on the cable or a precision connection.

Topologies
How many bus topologies does the standard support? The "Data and Computer Communications" text book describes the three types on p368.

NexGenBus Team

Sample Scoring Sheet

Score	Bus Rate (@100 ft/30 m)	BER	Node Sync	Industry Acceptance	Ease of Use: Medium	Ease of Use: Cable Diam	Ease of Use: Bend Radius	Field Mfr of Connector	Topologies	Cable Spec	Score
0	< 100Mbps	< 1 E-07	Not Capable (External Cable)	No Acceptance	Optical Only	> 1/2" diam	> 3" radius				0
1	100 Mbps	1.E-07	100 us			1/2" diam	3" radius	No	1 of 3	Commercial	1
2	200 Mbps		10 us				2 1/2" radius				2
3	300 Mbps	1.E-08		Marginal Acceptance		7/16" diam	2" radius				3
4	400 Mbps		1 us			3/8" diam	1 3/4" radius				4
5	500 Mbps	1.E-08			Copper Only	5/16" diam	1 1/2" radius		2 of 3		5
6	600 Mbps		100 ns				1 1/4" radius				6
7	700 Mbps	1.E-09		Some Acceptance		1/4" diam	1" radius				7
8	800 Mbps		10 ns			3/16" diam	3/4" radius				8
9	1000 Mbps	1.E-10					5/8" radius				9
10	1500 Mbps	1.E-12	1 ns	Wide Acceptance Many Products	Copper and Optical	1/8" diam	1/2" radius	Yes	Bus Ring Star	Mil Spec	10
Weightings	4	4	3	3	2	2	2	2	1	1	

BUS STANDARD | **Cable Type** | **Score** -

(100 Points Max)

Raw Score									
Multiply by 4	Multiply by 4	Multiply by 3	Multiply by 3	Multiply by 2	Multiply by 2	Multiply by 2	Multiply by 2	Multiply by 1	Multiply by 1
-	-	-	-	-	-	-	-	-	-

- Total